Views of...

CHICAGO DRAINAGE CANAL

As seen along

The Santa Fe Route

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CHICAGO DRAINAGE CANAL

AS SEEN ALONG

THE SANTA FE ROUTE

Issued by Passenger Department,
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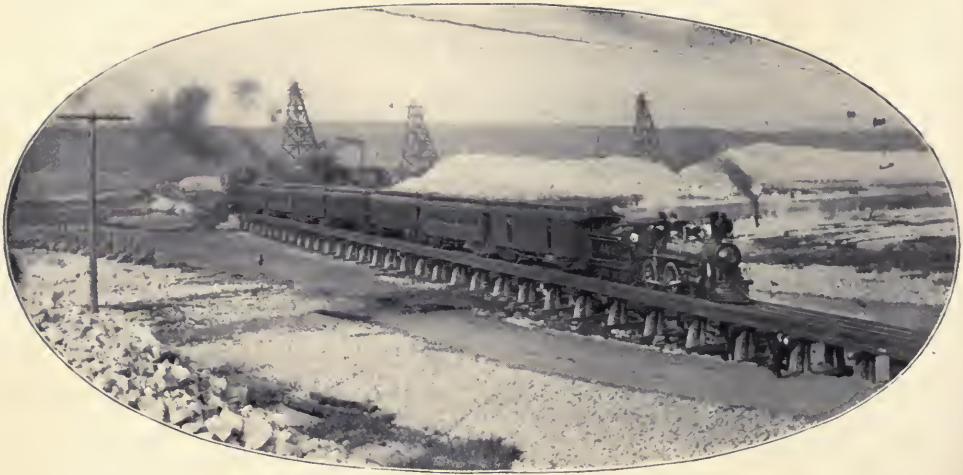
1896



Santa Fe Route Excursion Train Crossing Drainage Canal at Lemont.

DESCRIPTION OF CHICAGO DRAINAGE CANAL.

NEARLY everybody has heard of the "big ditch" that Chicago is building. Several thousand people have seen the work. Very few know what its chief features are. The facts below—"wet facts" they might be called in contrast to "dry"—should, therefore, be of interest.

The Main Channel of the Sanitary District of Chicago, the greatest engineering work in America, is being constructed under the general law incorporating Sanitary Districts, enacted by the Illinois Legislature in 1889, and is primarily designed to carry off the sewage which now finds its way to Lake Michigan through the Chicago river. This channel will be an important link of the grand waterway to the Mississippi River which the National Government has in contemplation. It is proposed to ultimately finish that part between where the Sanitary Canal ends at Lockport, and Utica on the Illinois river, a distance of sixty odd miles. When completed to Lockport the pure waters of the lake will flow into the Chicago river, and the new current will force the polluted river-water to the Mississippi through the Drainage Canal and the DesPlaines and Illinois rivers.

The right of way for the channel, approximating 6,500 acres of land, was acquired either by condemnation or purchase for approximately $2,400,000.

The canal starts from its confluence with the West Fork of the South Branch of the Chicago river at Robey street, Chicago, and ends at Lockport, twenty-eight miles distant. Work was commenced "Shovel Day," September 3, 1892, at the rock cut below Lemont on the line between Cook and Will counties, and in spite of the difficulties encountered has been successfully prosecuted. It is reasonable to anticipate the completion of the canal, including the works at Lockport to regulate the flow of the water into the DesPlaines river, in about a year or early in 1897.

The control of this river (which is the key to the valley and had a tendency to wander from its course at certain seasons, thereby causing considerable damage) was one of the first problems to be solved before the work could be safely carried forward. This was accomplished by excavating about thirteen miles of new river channel 200 feet wide at the bottom, parallel to the main canal, and extending from section C to section A, through portions of sections 1 and 2, and from sections 6 to 11. This river diversion channel includes about nineteen miles of levee between the canal and the DesPlaines watershed. It cost nearly $1,000,000.

The Drainage Canal is divided into twenty-nine sections, each section averaging one mile in length. Nos. 1 to 15 run south-westerly from Willow Springs, while sections A to O, omitting J, extend east to Robey street. The lettered sections are in earth; sections 1 to 6 are in earth and rock (glacial drift), while sections 7 to 15 are all rock.

The bottom of sections A to E, with 500 feet of section F, is 202 feet wide. East of these the

width is 110 feet. Sections 1 to 15, except a portion at south end of the latter, are 160 feet wide at the bottom. The width at top of the earth sections is 306 feet.

The fall in earth and glacial drift (from Robey street to Willow Springs) is about one and one-half inches to a mile; in solid rock (Willow Springs to Lockport) the fall is about three inches to a mile. The bottom of the channel at the controlling works will be about 5¾ feet lower than at Robey street.

The sides of the rock sections are vertical; those of the earth sections slope away towards the top. The walls of the sections in glacial drift (Nos. 1 to 6) are masonry laid in cement.

The average depth of the canal is from 30 to 36 feet and the average depth of water will be from 22 to 24 feet. The canal's greatest depth is 46 feet.

A flow of 300,000 cubic feet of water a minute, sufficient to take care of the requirements of the city's present population, will be permitted by the canal's present dimensions. Later, when the growth of the city demands it, the sections in earth will be dredged so their width will permit the passage of 600,000 cubic feet, or 4,500,000 gallons of water per minute—ample provision for the 3,000,000 people which "Greater Chicago" confidently expects to have some day. Numerous springs were tapped during the excavations, and their waters cover the floors of sections that are finished, but under the provisions of the contract the contractors who have finished must keep their sections free from water until the canal is accepted by the State Board of Commissioners to be appointed by the legislature.

This channel will cost in the neighborhood of $28,000,000 and will be paid for by the Sanitary District, which comprises all of the city north of Eighty-seventh street, together with some forty-three square miles of Cook county, outside of the city limits which will be directly benefited by the improvement. This money is raised by a tax of one-half of one per cent. of the value of taxable property within the corporate limits of the district, as the same shall be assessed and equalized for State and County taxes of the year in which the levy is made. The taxes afford sufficient revenue to pay the interest on the bonds issued by the Board of Trustees; to pay off and return one-twentieth of the issue each year, and leave a surplus to apply upon the current obligations of the district incurred for construction.

From the above it will be noted that Chicago has generously gone into her pockets for this great sanitary improvement.

The data used in this pamphlet was kindly furnished by officials of the Sanitary District.

The pictures shown herein were taken during various stages of the work. In several cases the present view is changed, but similar scenes may be observed on other sections of the Canal.

Hydraulic Dredge.—DesPlaines River.

THE TRIP DOWN THE CANAL.

LEAVING Dearborn Station via A. T. & S. F. Ry. the train pursues a course trending southwesterly, crosses the drawbridge over the South Branch of the Chicago river near Ashland avenue, then crosses the Illinois and Michigan Canal (which with the assistance of the Bridgeport pumping station, inadequately attempts to perform the work laid out for the great canal) and runs between it and the new Drainage Canal until section G (near Gahan & Byrne's Spur) is reached, beyond which point it crosses the Ogden Ditch, a continuation of the West Fork of the South Branch. The DesPlaines river is crossed soon after leaving the ditch, and just north of this crossing passengers may catch a glimpse of the spillway over which the surplus water of the river used to flow towards Chicago. At the time this spillway was built no arrangements had been perfected for carrying the entire flood waters of the DesPlaines river.

At section F (bridge 5) and the point from which the spillway may be seen, the first view of the diversion channel is to be had. This channel is south of the track and is in view almost all the way down to section A at Willow Springs.

Columbia Park, the best equipped private pleasure grounds adjacent to Chicago, and the scene of many happy summer-time gatherings, is situated at Willow Springs, on the A. T. & S. F. Ry. The

waters of the DesPlaines wash its wooded shores and make a silvery background, setting off to advantage the beautiful green of the trees and grass.

From bridge 5 to Tedens the river is between the track and the canal, but glimpses may be had of the canal itself, with the towers, cableways and derricks rising above or seen between the spoil-banks. Near the end of section 7 the road curves to the left, crosses the river-diversion channel, which is very wide at this point, and then diagonally crosses the drainage canal, which is here cut through the solid rock. All A. T. & S. F. excursion trains stop on this bridge, which is reached just before Lemont station, and passengers may obtain excellent views up and down the cut. From Lemont and until near Lockport the train runs on the south bank of and parallel to the canal, affording splendid panoramic views of the completed work, when the gigantic spoilbanks do not obstruct the view.

Persons desiring to spend more time in investigating and wishing to gain a better knowledge of the work, should take the train to Willow Springs and walk to the canal, which is about one thousand feet from the station and across the DesPlaines river, spanned here by a bridge. The work at and near Willow Springs is in glacial drift and the old bed of the river and requires the services of steam excavators. With untiring regularity and wonderful rapidity they gather in their iron scoops tons of earth and stone and by means of the movable arm to which they are attached dump the debris into the cars on the tracks alongside of the excavators. When a train is filled, the locomotives pull the cars out of the cut and up on spoilbanks. The power applied by the excavators is so great that the friction

between the scoops and earth causes curls of smoke to arise from the path cut through the drift. There are two of these excavators, four or five locomotives and perhaps fifty cars used in the work at this point. About half a mile west, stone is being quarried for the construction of the retaining walls which are in process of erection. Farther along are the cantilever conveyors used in lifting and removing the stones blasted out of the rock cuts. The scenes at and near Willow Springs are frequently repeated, the greatest deviation being only in the method of removing the spoil. The appliances in use here are in many cases marvels. They form a distinct contribution to the world of mechanics—great engines for digging, lifting and transporting earth and rock.

In section 10 at Lemont the finished rock cut can be seen, and the more venturesome may descend to the bottom by means of the stairs which are still there.

Take the train again at Lemont and get off at Smith & Eastman's, pass the spoilbank, and from the wooden bridge that spans the cut at this point the line of the canal can be seen as far as the curve near Romeo.

A walk thence to Lockport (about two miles) will increase one's appreciation of the magnitude of this undertaking and engender a greater admiration for the wonderful inventive and executive powers of the men who made this work a possibility.

At intervals the sides of the canal are discolored, owing to the mineral properties of the spring waters that percolate through the rock. The seepage together with the snow and rain has covered

portions of the canal with water to the depth of a foot, but as the contractors are to pump the water out until the canal is accepted by the authorities, the water will not rise to a height to become troublesome.

Work on section 15 is being rapidly pushed and hundreds of men are employed in drilling, blasting, building retaining walls and in operating steam shovels. The trains hauled by little wheezy locomotives that pull heavily loaded cars from the cut up to and on top of the spoilbanks apparently without reference to gravitation's law, add to the interest of the scene.

There will be two "windage basins" in which large vessels may be turned; one at Robey street and the other near the end of the canal at Lockport. The latter will be 505 feet in width.

Inspection of the controlling works at Lockport, comprising retaining walls, a bear-trap dam and fifteen sluice-gates, will prove a fitting wind-up to the day's tour of investigation into the methods of construction applied to this most stupendous of artificial waterways.

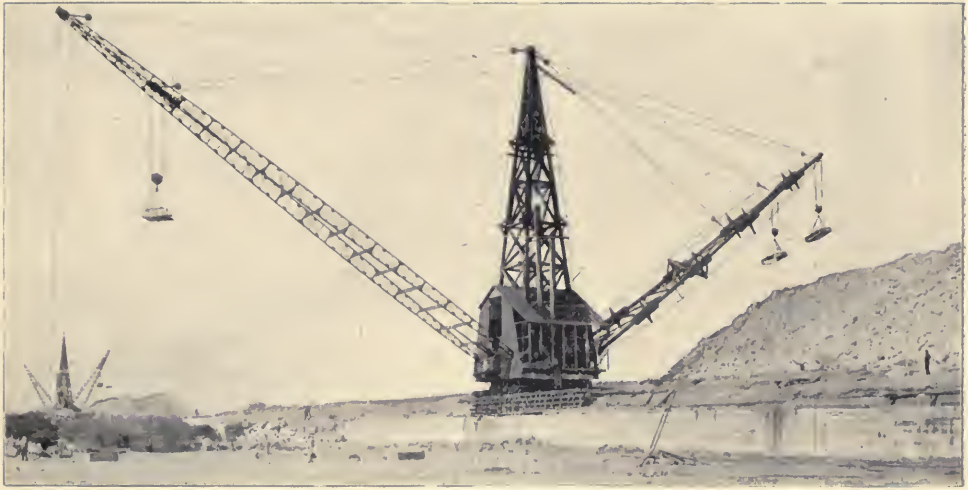
Excavating Earth with Steam Shovel.—Sections I and K.

Steam Shovel and Tram Cars.—Section 15.

1,800 Pound Dynamite Blast.--Section 9.

Rock Blast.– Section 12.

Removing Material from Rock Cut.—Section 9.



Revolving Derrick.

Cableways and Half a Ton of Dynamite Blast.—Section 8.

Cableways.—Near Lemont.

Panoramic View of Canal, Town

o and Surrounding Country.

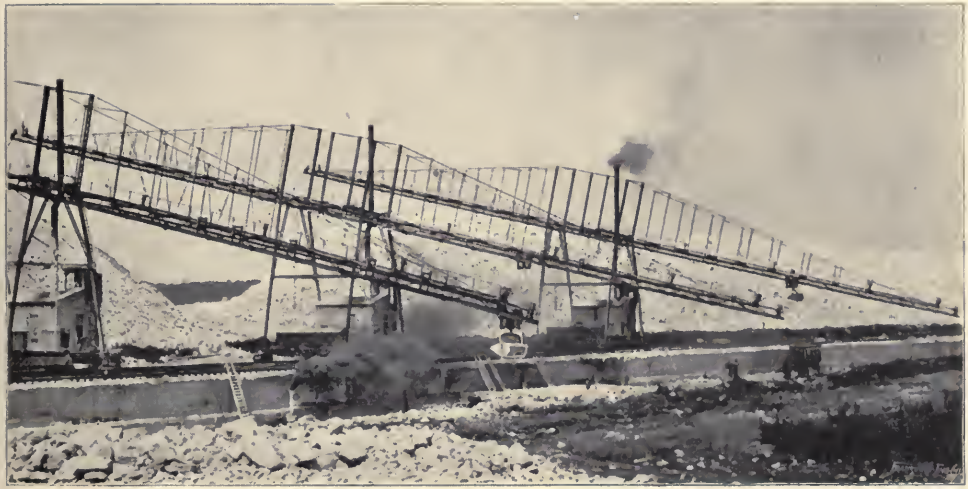
Quarrying and Wall Building.—Section 6.

Solid Rock and Cableways.—Section 8.

Solid Rock, Topped with Wall of Masonry.—Section 6.

Building the Retaining Wall.—Section 6.

Incomplete Retaining Wall.—Section 5.



Cantilever Conveyors.—Section 10.

Solid Rock, Showing Earth Pocket.

High Power Revolving Derricks.

Retaining Wall on Solid Rock Foundation, Four Feet Wide on Top.

The Great Curve Near Romeo.

Anniversary of Shovel Day.—Section 10.

A Characteristic Group.

Cantilever Conveyor.

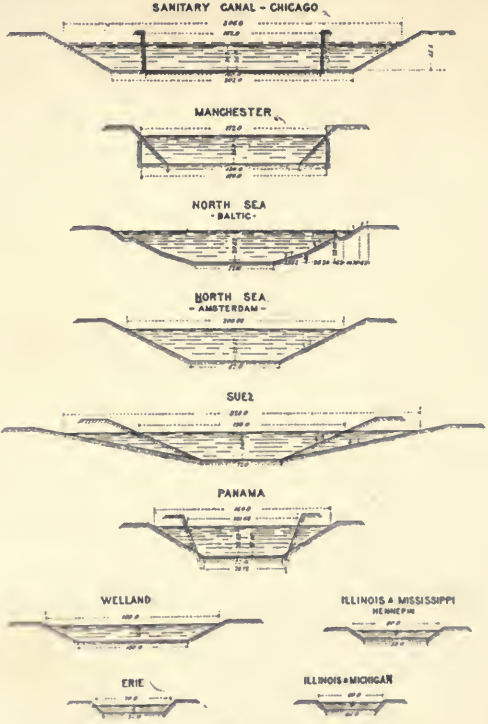
Rock Cut Showing Full Depth.—Section 9.

How the Completed Channel will Look.

SOME PROMINENT VISITORS.

THE interest in the canal is not purely local or national, but is international. It has been inspected by city, state and national officials, and so widespread is its fame that engineers of note from abroad have visited and inspected the work, and the comparison of this canal with the Suez, Kiel and Manchester Canals as regards cost, time of construction and measurements has not been to our discredit. Subjoined are the names of a few prominent professional and scientific men who have visited the "big ditch."

EMILE LEVASSEUR, Professor College of France.
A. STRADAL, Engineer, Hamburg, Germany.
CH. DE TAVERNIER, Engineer of Roads and Bridges, Paris, France.
BERNHARDT OHRT, Architect, Hamburg, Germany.
ATTILIO PRATESI, Engineer, Rome, Italy.
W. RITTER, Professor Politechnikum, Zurich, Switzerland.
JOHANNES RISSER, Amberg, Bavaria.
T. V. MENDES GUERREIRO, Engineer, Lisbon, Portugal.
KARL MEIER, City Engineer, Berlin, Germany.
H. BRINCKMANN, Architect, Brunswick, Germany.
SLAVOMIR MONCOVSKY, Chief Civil Engineer of the Amoor Country, Khabarofsk, Siberia.



CROSS SECTIONS OF NOTED CHANNELS.

THE SANTA FE ROUTE

POPULAR WEEKLY EXCURSIONS

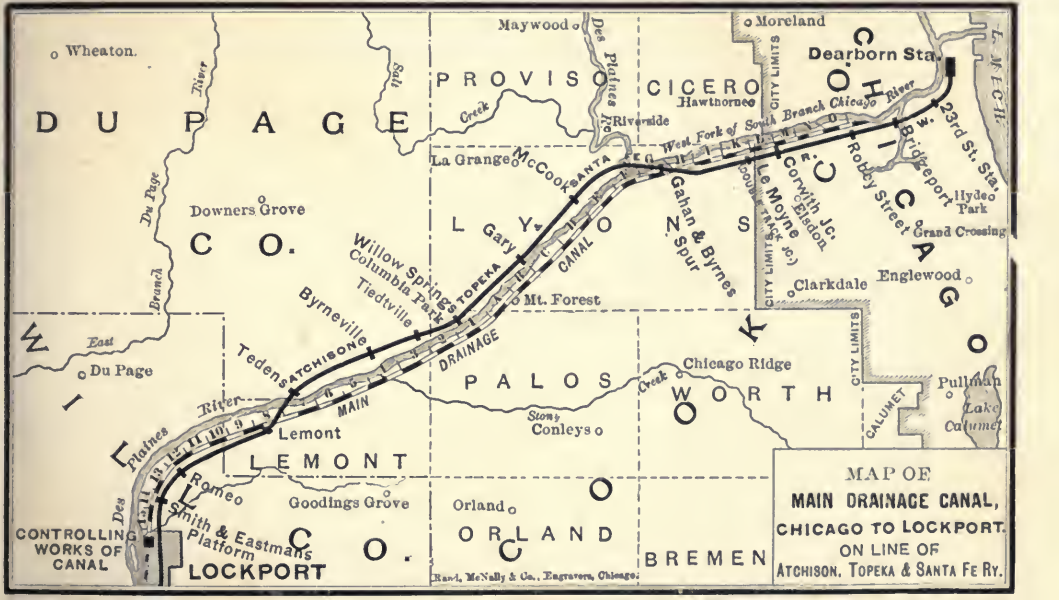
DOWN THE DRAINAGE CANAL

Will be continued during the excursion season of 1896.
Full particulars in daily papers and circulars as to dates, train service, ticket rates, etc.
The SANTA FE affords the best view of the Canal along its entire course.

SCHOOLS, CLUBS AND SOCIETIES

Will find the trip to Lockport and return a most enjoyable one.
For full information address

J. M. CONNELL,
City Pass. Agt. A. T. & S. F. Ry.,
212 Clark Street.


MAP OF
MAIN DRAINAGE CANAL,
CHICAGO TO LOCKPORT.
ON LINE OF
ATCHISON, TOPEKA & SANTA FE RY.
Rand, McNally & Co., Engravers, Chicago.
DUPAGE CO.
WILL CO.
COOK CO.
CHICAGO
PROVISO
CICERO
LYONS
PALOS
WORTH
LEMONT
ORLAND
BREMEN
LOCKPORT
Wheaton
Downers Grove
Du Page
Maywood
Moreland
Dearborn Sta.
Hawthorne
Riverside
La Grange
McCook
Gary
Mt. Forest
Willow Springs
Columbia Park
Tiedtville
Byrneville
Tedens
Lemont
Romeo
Smith & Eastmans Platform
Goodings Grove
Orland
Conleys
Chicago Ridge
Clarkdale
Englewood
Pullman
Lake Calumet
Hyde Park
Grand Crossing
Robey Street
Bridgeport
23rd St. Sta.
Corwith Jc.
Elsdon
Le Moyne
Gahan & Byrnes Spur
West Fork of South Branch Chicago River
Des Plaines Rd.
Des Plaines River
Salt Creek
Du Page River
East Branch
Stony Creek
CITY LIMITS
CALUMET
SANTA FE
TOPEKA
ATCHISON
MAIN DRAINAGE CANAL
CONTROLLING WORKS OF CANAL
L. M. E. C. R.

The
Desplaines
Press
P. F. Pettibone & Co.
Chicago

TC
625
C6
V54
1896
RARE
BK RM